APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,831	03/30/2004	Takayuki Nakamura	042310	3046

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EXAMINER
RODRIGUEZ, PAUL L

ART UNIT	PAPER NUMBER
2125	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/811,831	NAKAMURA, TAKAYUKI
	Examiner	Art Unit	
	Paul L. Rodriguez	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 2* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 2* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>30 March 2004</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *3/30/04*.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

1.   Claims 1 and 2 are presented for examination.

Drawings

2.   Figure 14 should be designated by a legend such as --Prior Art-- because only that which

is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR

1.121(d) are required in reply to the Office action to avoid abandonment of the application. The

replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR

1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted

by the examiner, the applicant will be notified and informed of any required corrective action in

the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3.   Applicant is reminded of the proper language and format for an abstract of the disclosure.

        The abstract should be in narrative form and generally limited to a single paragraph on a
separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed
150 words in length since the space provided for the abstract on the computer tape used by the
printer is limited. The form and legal phraseology often used in patent claims, such as "means"
and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist
readers in deciding whether there is a need for consulting the full patent text for details.

        The language should be clear and concise and should not repeat information given in the
title. It should avoid using phrases which can be implied, such as, "The disclosure concerns,"
"The disclosure defined by this invention," "The disclosure describes," etc.

        The abstract of the disclosure is objected to because of the use of the term "said".

Correction is required. See MPEP § 608.01(b).

4.   The disclosure is objected to because of the following informalities:

Page 6 line 22 uses the acronym "CL" without defining. It is unclear as to the meaning

of the term used. The first time an acronym is used it should be defined to avoid any confusion

as to its meaning. Other acronyms are used without defining also, "NC" (page 1 line 5) and

"CAD" (page 2 line 3).

Appropriate correction is required.

5.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

6.   The following title is suggested: "Automatic Programming Apparatus for Numerically

Controlled Machine Tool".

Claim Objections

7.   Claim 1 is objected to because of the following informalities:

Claim 1 line 2 uses the acronym "NC" without defining, although the acronym is well

known in the art, without defining an acronym could render its meaning and the claim indefinite.

Claim 1 lines 4-5 refer to "the bottom surface", would be better as "a bottom surface", the

term "the" is similar to the term "said" in that it creates a positive recitation to the related terms,

could create an antecedent problem in the claim or confusion.

Claim 1 line 11 refers to "the material", creating a positive recitation of the term material,

would be better as "a material" because the term was not previously introduced.

Claim 1 lines 12 refers to "the tool", previously "a cutting tool" and "a tool data", unclear

as to which tool this is referring to.

Claim 1 line 12 refers to "the type, the dimension and the material", would be better as "a

type, a dimension and a material".

Claim 1 lines 21-22 refers to "said to-be-used tool", previously "a tool to be used", and

the use of "-" not previously made.

Claim 1 line 50 refers to "the machining region", previously "machining regions" and

"each of said machining regions", but not a specific machining region.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8.   Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

9.   Claim 1 recites the limitation "said tool" in line 13. There is insufficient antecedent basis

for this limitation in the claim. Previously "a cutting tool", "a tool data", and "the tool", unclear

which is being referred to.

10.   Claim 1 recites the limitation "CL" in line 18. The acronym has not been defined in the

disclosure, rendering the claim indefinite.

11.   Claim 1 recites the limitation "the feed speed" in line 20. There is insufficient antecedent basis for this limitation in the claim.

12.   Claim 1 recites the limitation "the traveling positions" in line 21. There is insufficient antecedent basis for this limitation in the claim.

13.   Claim 1 recites the limitation "the identification data" in line 34. There is insufficient antecedent basis for this limitation in the claim.

14.   Claim 1 recites the limitation "the minimum curvature radius" in line 41. There is insufficient antecedent basis for this limitation in the claim.

15.   Claim 1 recites the limitation "the concave surfaces" in line 42. There is insufficient antecedent basis for this limitation in the claim. Previously "a concave portion machining tool" but not a concave surface.

16.   Claim 1 recites the limitation "the minimum distance" in line 43. There is insufficient antecedent basis for this limitation in the claim.

17.   Claim 1 recites the limitation "the wall gaps" in lines 43-44. There is insufficient antecedent basis for this limitation in the claim.

18.   Claim 1 recites the limitation "the maximum diameter" in line 64. There is insufficient

antecedent basis for this limitation in the claim.

19.   Claim 2 recites the limitation "the constituent tools" in line 7. There is insufficient

antecedent basis for this limitation in the claim.

20.   Claim 2 recites the limitation "the outside" in line 11. There is insufficient antecedent

basis for this limitation in the claim.

21.   Regarding claim 1 line 10 and 12, the phrase "such as" renders the claim indefinite

because it is unclear whether the limitations following the phrase are part of the claimed

invention. See MPEP § 2173.05(d).

22.   Due to the number of 35 USC § 112 second paragraph rejections and claim objections,

the examiner has provided a number of examples of the claim deficiencies in the above

rejection(s), however, the list of rejections and objections may not be all inclusive. Applicant

should refer to these rejections as examples of deficiencies and should make all the necessary

corrections to eliminate the 35 USC § 112 second paragraph problems and place the claims in a

proper format.

23.   Due to the vagueness and a lack of a clear definition of the terminology and phrases used

in the specification and claims, the claims have been treated on their merits as best understood by

the examiner.

Claim Rejections - 35 USC § 102

24.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

25.   Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by

Teramoto et al (U.S. Pub 2003/0171842). The claimed invention reads on Teramoto et al as

follows:

Teramoto et al discloses (claim 1) an automatic programming apparatus for generating an

NC program for causing a cutting tool to machine a workpiece into a product shape having a

recess and one or more protrusions formed in the bottom surface inside the recess (figures 1, 3-9,

paragraphs 9, 10, 28, 35, 41, 48, 57, 60, 69, 221), said automatic programming apparatus

comprising a product shape data storing section for storing shape data defining said product

shape (reference number 1, a1, 10, figure 1, 2, 8, paragraph 104, 111, 174) a workpiece data

storing section for storing data concerning the workpiece such as the shape and the material of

said workpiece (reference number 21, paragraph 158, 178, 184), a tool data storing section for

storing data concerning the tool such as the type, the dimension, and the material of said tool

(reference number 22, 23, paragraph 153, 158, 177, 188, 189), a machining condition data

storing section for storing data concerning a machining condition having been set depending on

said workpiece and tool (reference number 24, paragraph 158, 182, 190), a CL data generating

section for setting machining regions and then generating CL data containing at least a tool to be

used, the feed speed thereof, and the traveling positions of said to-be-used tool in a work

coordinate system for each of said machining regions having been set, on the basis of said data

stored in said product shape data storing section, said workpiece data storing section, said tool

data storing section, and said machining condition data storing section (reference number 2, 20A,

paragraph 105, 112, figure 8) and an NC program generating section for generating an NC

program on the basis of the traveling positions in the work coordinate system contained in the

CL data generated by said CL data generating section (figure 8, reference number 20B), wherein

said automatic programming apparatus further comprises a concave portion machining tool

storing section for storing the identification data of a plurality of tools that are selected in

advance as tools to be used for the machining of said recess from among the tools the data of

which is stored in said tool data storing section, and that have diameters different from each

other and include at least a minimum diameter tool having a diameter smaller than twice the

minimum curvature radius of the concave surfaces inside said recess of said product and than the

minimum distance of the wall gaps inside said recess and a tool having a larger diameter than the

minimum diameter tool (figure 16, paragraph 177-193), and a machining time calculating section

for calculating the machining time on the basis of the CL data generated by said CL data

generating section (paragraph 156, 176, 212-214), wherein when the machining region having

been set is said recess, said CL data generating section performs successively a combination

setting process of referring to the identification data stored in said concave portion machining

tool storing section, thereby extracting one or more tools from among a plurality of said tools

selected in advance, and thereby setting a plurality of tool combinations including at least said

minimum diameter tool (figure 12, 13, 18-27, paragraph 182-202), and a CL data generating

process of generating, for each of said combinations having been set, rough cutting CL data for

rough cutting performed by the successive use of the tools in the descending order of tool

diameter starting with the tool having the maximum diameter, and then generating finishing CL

data for finishing performed by the use of said minimum diameter tool (figure 7, 19-23,

paragraph 146, 156, 181, 190, 191, 202), wherein said machining time calculating section

calculates the machining time for each of said combinations on the basis of the CL data

generated for each of said combinations (paragraph 212-214), and wherein said NC program

generating section generates said NC program by using the CL data having the minimum

machining time among those calculated by said machining time calculating section (reference

number 4, 5, 40, paragraph 6, 174, 215-225, 251), (claim 2) wherein said concave portion

machining tool storing section groups into a tool group a plurality of said tools selected as those

to be used for the machining of said recess, and then stores the identification data of the

constituent tools for each of said tool groups the constituent tools of which are different from

each other (figure 11-15, 25, 26), and wherein said CL data generating section receives from the

outside a signal for selecting one from among a plurality of said tool groups, then refers to the

identification data of said tool group corresponding to said selection signal, stored in said

concave portion machining tool storing section, and thereby performs said combination setting

process and said CL data generating process successively (paragraph 185, 186, 208). Examiner

would like to point out that any reference to specific figures, columns and lines should not be

considered limiting in any way, the entire reference is considered to provide disclosure relating

to the claimed invention.

Conclusion

26.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Kakino et al (U.S. Pub 2003/0170085) – teaches generating CL data, NC programs for a

concave machining, automatic NC programming, product shape data, workpiece data, tool data

and machining conditions. Identification of a particular tool for machining having different

diameters, automatic selection of a tool and an evaluation section to determine the optimum tool

path selected automatically.

Izutsu et al (U.S. Pub 2002/0164221 and U.S. Pat 6,824,336) – teaches automatic

programming apparatus for the generation of NC programs using product shape data, workpiece

data, tool data, and machining condition data. The apparatus has a CL data generation section,

NC program section, a concave portion machining tool storing section a machining time

calculation section and an NC program generation section using acceptable loads and speeds.

Fishman (U.S. Pat 6,112,133) – teaches automatic program generation for machining

operations that are optimized to achieve a minimum process time to machine a part.

Hirai et al (U.S. Pat 5,815,400) – teaches calculation of a machine time, selection of a

tool, which requires the minimum time, based upon tool diameter.

Goto (U.S. Pat 5,289,382) – teaches a program generation method and system that uses a

shape model, tool data and other information to prepare an NC program for machining a product having a recess, protrusions and a concave portion.

27.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul L. Rodriguez whose telephone number is (571) 272-3753. The examiner can normally be reached on 6:00 - 4:30 T-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Paul L Rodriguez
Primary Examiner
Art Unit 2125

PLR
4/28/05